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# PATENT SPECIFICATION



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249,213

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## COMPLETE SPECIFICATION.

### Improvements in or relating to Electric Motors.

I, JOHN FERREOL MONNOT, Engineer, of Highwood House, Mill Hill, in the County of London, a citizen of the United States of America, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to electric motors of the kind in which springs are employed for retaining the field coils in position after they have been applied to the pole pieces or cores of the field magnet the said motors being generally small electric motors such as are employed for example on motor propelled vehicles and of which the field magnets are of annular formation with their pole pieces or cores directed inwardly. These retaining springs are liable, as a result of the vibration of the vehicle, to work loose with the result that they fail to retain the motor field coils in proper position.

According to this invention the retaining springs are adapted to be used in conjunction with clips which surround or embrace the field coils and are so constructed that their tendency is to work inwardly, i.e. towards the said clips thereby always keeping in engagement therewith and retaining the field coils in position. The said springs may be made in the form of coils or loops terminating in straight portions or legs which prior to the engagement with the clips lie outwardly inclined or away from each other the said straight portions or legs being adapted to engage with eyelets on the said clips by pressing the straight portions or legs towards each other into a more or less parallel position so that on releasing this pressure after the engagement has been effected the straight portions or legs constantly tend to spring apart and thus cause the springs to work inwardly as aforesaid.

[Price 1/-]

In order that the said invention may be clearly understood and readily carried into effect, the same will now be described more fully with reference to the accompanying drawing, in which:—

Figure 1 is a perspective view of part of an electric motor field magnet showing the coils retained in position by the improved springs.

Figure 2 is an elevation of the field magnet with a portion thereof cut away to expose the field coils and the retaining springs, and

Figure 3 is a plan of Figure 2 with one of the springs partly broken away.

A represents part of the field magnet and  $a, a^1$  the two pole pieces or cores thereof. B, B<sup>1</sup> are the field coils which are placed around said pole pieces, C, C<sup>1</sup>, C<sup>2</sup> are the clips which are attached to said coils at points which lie between the pole pieces or cores  $a, a^1$  the clips on one coil being opposite the clips on the other coil. D, D<sup>1</sup> are the retaining springs made from spring steel wire bent into the form of a coil or loop and terminating in the straight portions  $d, d^1, d^2$  which engage with the corresponding opposite clips on the field coils by passing through the eyes  $c, c^1, c^2$  with which the clips C, C<sup>1</sup>, C<sup>2</sup> are provided for the purpose. The aforesaid straight portions of the springs are made at such an inclination to each other that before they can be engaged with the eyes in the clips they have to be bent or pressed towards each other so that the said straight portions lie parallel to each other and when in engagement with the eyes in the clips tend to work outwardly or away from each other.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. An electric motor of the kind set forth, in which the field coils are pro-

vided with clips and retaining springs so constructed that the tendency of the springs is to work inwardly i.e. towards the clips under the influence of vibration

5 for the purpose specified.

2. Field coil retaining springs as in Claim 1, in which each spring is made in the form of a coil or loop of spring wire having straight portions or legs which

10 prior to engagement with the clips lie outwardly inclined and have to be pressed inwardly or parallel to each other in effecting the engagement for the purpose specified.

3. An electric motor having field coil 15 retaining springs constructed and arranged to operate substantially as herebefore described with reference to the accompanying drawing for the purpose specified.

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Dated this 18th day of December, 1924.

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Agents for the Applicant.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd —1926.

[This Drawing is a reproduction of the Original on a reduced scale.]

Fig. 1.

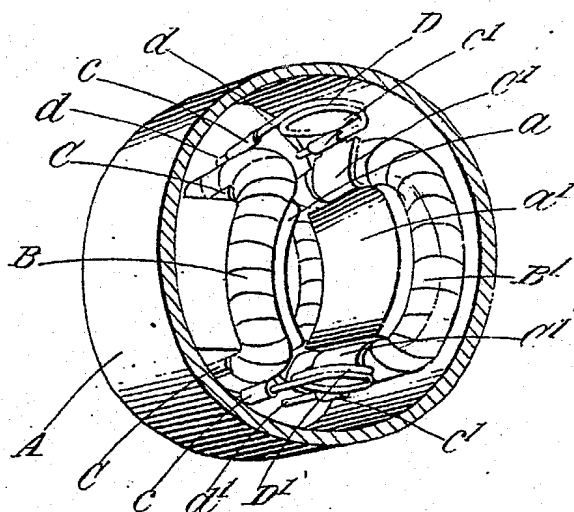


Fig. 2.

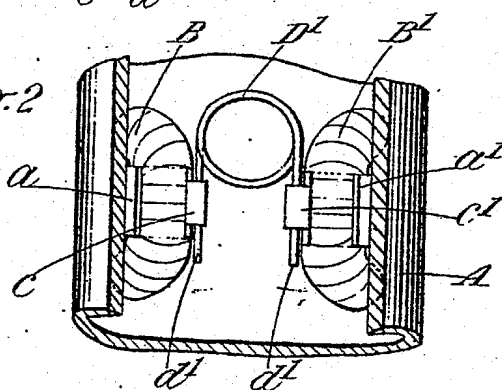


Fig. 3.

